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Cominco Ltd. / 61st Annual Report 1966



Cominco Ltd./61st Annual Report 1966

COMINCO LTD.

Head Office: 630 Dorchester Blvd. W., Montreal, Canada

Directors

G. H. Baillie*
L. J. Belnap
A. L. Bishop
N. R. Crump*
Gordon Farrell

G. A. Hart
R. Hendricks*
W. S. Kirkpatrick*
D. R. McMaster
S. E. Nixon

R. D. Perry*
Hon. James Sinclair
R. E. Stavert*
H. G. Welsford

*Member of Executive Committee

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*Chairman and
Chief Executive Officer*

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President

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Vice-President

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Executive Vice-President

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Vice-President, Operations

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*Vice-President,
Research and Corporate
Development*

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Vice-President, Sales

J. H. Salter
Vice-President, Western Region

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*Vice-President,
Exploration*

S. M. Rothman
Manager, Western Operations

F. L. Hallam
Secretary-Treasurer

L. O. Reid
Assistant Secretary

K. E. Clare
Assistant Treasurer

Transfer Agents

The Royal Trust Company, Montreal
The Royal Trust Company, Vancouver

Canada Permanent Trust Company, Toronto
Bank of Montreal Trust Company, New York

Registrars

Montreal Trust Company, Montreal
Montreal Trust Company, Vancouver

Crown Trust Company, Toronto
Chemical Bank New York Trust Company, New York

Comparative Highlights

	1966	1965	1964	1963	1962
Sales of all products	\$224,566,000	\$211,173,000	\$170,029,000	\$140,307,000	\$131,101,000
Net earnings	49,183,000	53,037,000	39,556,000	29,823,000	23,227,000
Net earnings per share	\$2.95	\$3.18	\$2.37	\$1.82	\$1.42
Dividends declared	30,036,000	30,036,000	26,454,000	21,294,000	18,018,000
Dividends per share	\$1.80	\$1.80	\$1.60	\$1.30	\$1.10
Income, mining and property taxes	18,759,000	26,672,000	27,437,000	19,709,000	16,995,000
Depreciation	14,370,000	13,586,000	11,585,000	10,927,000	10,433,000
Depletion	1,290,000	1,112,000	156,000	—	—
Capital expenditures	66,006,000	64,410,000	38,048,000	22,732,000	13,104,000
Working capital	86,258,000	79,432,000	97,324,000	101,115,000	103,107,000
Cash and marketable securities	26,904,000	35,065,000	64,800,000	72,351,000	71,887,000
Inventories of raw materials and products	43,893,000	40,073,000	32,484,000	26,665,000	27,763,000
Number of employees at year-end of Cominco and its subsidiaries	10,145	9,965	9,714	8,356	8,073
Number of shareholders at year-end	42,232	39,066	35,712	35,218	35,805

Output of Principal Products

Year	Lead Short Tons	Zinc Short Tons	Ores and concentrates shipped for sale Short Tons	Silver Ozs.	Cadmium Short Tons	Fertilizer Short Tons	Iron and Steel Short Tons
1894 to 1956	5,854,153	4,355,463	462	324,559,729	9,872	8,731,583	
1957	142,935	188,555	3,332	10,877,532	901	659,050	
1958	132,987	192,282	676	12,875,160	643	692,194	
1959	135,296	192,762	11,563	9,367,029	838	664,228	
1960	158,510	193,875	515	8,690,244	918	713,168	
1961	171,833	193,138	495	8,816,141	963	696,286	32,049
1962	152,217	199,393	31,919	6,667,813	1,059	714,335	31,441
1963	155,001	194,159	35,849	6,847,606	1,019	708,548	37,678
1964	151,372	199,011	41,296	7,347,590	945	739,080	83,992
1965	186,484	213,082	109,502	6,415,230	359	754,550	180,889
1966	184,871	221,871	268,057	6,609,110	787	965,435	188,090
1894 to date	7,425,659	6,343,591	503,666	409,073,184	18,304	16,038,457	554,139



The Bluebell lead-zinc mine situated on Kootenay Lake at Riondel, B.C. Lead and zinc concentrates from this operation are treated in the metallurgical plants at Trail, B.C.

61st Annual Report of the Directors

Montreal, P.Q., March 9, 1967

To the Shareholders:

On the 8th January, 1966 the company completed its sixtieth year of corporate life as The Consolidated Mining and Smelting Company of Canada Limited. Over the years the cumbersome length of this name had resulted in the company being referred to by various abbreviations and the term Cominco had come into most general usage. This name was adopted at the Special General Meeting of the Shareholders on the 28th April, 1966 and became official on the 16th May when supplementary letters patent were issued by the Secretary of State. This annual report is the first to be issued under the new name, Cominco Ltd.

During the year under review the general business of the company continued at a high level in all phases of its activities. Sales of the company reached the record level of \$224,566,000, an increase of 6.3% over the previous year. However net earnings decreased by 7.3% to \$49,183,000. Although this decrease in earnings is chiefly due to the effect of a non-recurring dividend paid by a subsidiary company during 1965, it is indicative of the general trend of rising costs of production and marketing relative to productivity and prices. These factors, together with pressure on the prices of the company's main products from intensified competition, reduced profit margins, particularly in the latter half of the year.

In the marketing of its major products the company's business is heavily dependent upon export. In the year under review 69% of lead and zinc metal and 57% of the chemical and fertilizer products were sold in foreign countries. It is thus essential to the welfare of the company that productivity of the company's operations be maintained at a high level in order to retain its competitive position in world markets. This is becoming increasingly difficult because of ex-

cessive escalation of the cost of labour and materials.

The consolidated financial statements and Auditors' Report and other information covering the affairs of the company for the year ended the 31st December, 1966 follow:

Financial

The 1966 financial statements of the company are presented in consolidation with those of its wholly-owned subsidiary companies and of Pine Point Mines Limited.

Consolidated net earnings for the year were \$49,183,000, compared with \$53,037,000 in 1965. As in 1965 dividends of \$1.80 per share amounting to \$30,036,000 were declared during the year.

The decrease in earnings was mainly attributable to lower prices received for lead and zinc, particularly the former, offset by a substantial volume of sales of lead and zinc concentrates from Pine Point in the first full year of complete operation. Earnings from chemical and fertilizer operations were lower, in spite of a higher volume of sales, because of reduced selling prices, substantially increased labour costs, start-up expenses associated with new plants and continued operating problems at the Douglas mine in Montana. Income from investments was lower reflecting, among other things, a non-recurring dividend of \$2,500,000 received in 1965 from West Kootenay Power and Light Company, Limited. Tax-exempt earnings of Pine Point Mines Limited increased substantially because of greater output and accordingly the consolidated provision for income taxes decreased.

Sales of products, net of freight, handling and other deductions, amounted to \$224,566,000

compared with \$211,173,000 in 1965. During 1966 total sales revenues were derived as follows: lead and zinc (including ores and concentrates) 51%; all other metallurgical products 21%; fertilizers 26%; industrial chemicals and others 2%.

Consolidated net capital expenditures and investments amounted to \$66,006,000. The larger items included: preparation for production at the Saskatchewan potash property \$10,667,000; fertilizer production and distribution facilities in the United States and Canada \$7,537,000; power production and transmission facilities \$1,425,000; smelting and refining facilities in Canada and overseas \$2,953,000; steel ingot production and fabrication facilities \$5,284,000; preparation for production at the Magmont lead mine in Missouri \$3,659,000; and the acquisition of Pyramid properties (see Note 4 to financial statements) \$26,320,000.

At the 31st December working capital amounted to \$86,258,000, an increase of \$6,826,000 during the year, accounted for as follows:

Sources:

Net earnings	\$ 49,183,000
Add: Charges deducted in determining net earnings not requiring an outlay of funds:	
Depreciation and depletion	15,660,000
Income tax provision for future years	10,357,000
Minority interest in net retained earnings of Pine Point Mines Limited	1,049,000
	<hr/> 76,249,000
Issue of shares by Pine Point Mines Limited to acquire property (Note 4)	26,320,000
Long-term borrowings (net)	2,652,000
	<hr/> \$105,221,000

Applications:

Dividends declared	\$ 30,036,000
Capital expenditures and investments	66,006,000
Increase in sundry non-current items	2,353,000
	<hr/> \$ 98,395,000
Increase in working capital	<hr/> \$ 6,826,000



The concentrator of Pine Point Mines Limited has a capacity of 5,000 tons of zinc-lead ore per day. The mining and concentration operations of this subsidiary company are managed by Cominco.



Metals

Refined lead production at 184,871 tons continued at a high level and compared with 186,484 tons in 1965. Zinc production at 221,871 tons increased from 213,082 tons in 1965. The lead and zinc production was derived approximately as follows:

	1966	1965
Sullivan Mine	38%	48%
Pine Point Mine	47%	29%
Other company mines, including accumulated slags	10%	12%
Purchased	5%	11%

In 1966 ore production from the Sullivan mine was 2,136,000 tons compared with 2,301,000 tons in 1965; from the Bluebell lead-zinc mine 246,000 tons compared with 256,000 tons in 1965; from the HB mine, which is predominantly a zinc producer, 389,000 tons, compared with 416,000 tons in 1965. Total ore reserves at these three mines at the 30th September, 1966 were 71.6 million tons containing 7.9 million tons of lead and zinc compared with 73.9 million tons containing 8.1 million tons of lead and zinc at the 30th September, 1965. Ore reserves at the Pine Point Mine at the year end were 37.8 million tons containing 3.7 million tons of lead and zinc compared with 21.5 million tons containing 2.4 million tons of lead and zinc at the 30th September, 1965.

Shipments to Cominco of high grade ore from Pine Point Mines Limited continued throughout 1966 and a total of 258,000 tons of ore was treated compared with 262,000 tons in 1965. In addition, 35,700 tons of lead concentrate and 84,600 tons of zinc concentrate produced at Pine Point were treated at Trail. As a result of the availability of this Canadian material purchases of ores and concentrates from foreign sources were at a very low level. Some Pine Point lead and zinc ores and concentrates were marketed to other smelters in Canada, U.S.A., India and Japan.

Free World consumption of lead and zinc in 1966 increased to record levels of about 3.1

million tons and 3.8 million tons, respectively. Supplies of both metals increased because of new mines coming into production during the year and in addition there were releases from the U.S. Government stockpile and imports from the Soviet sphere. The demand for Cominco lead was strong and inventories remained at low levels throughout the year. Cominco inventories of zinc increased steadily during the year and production at Trail was curtailed in the final quarter of 1966. The HB zinc-lead mine, with a normal annual recoverable output of 18,000 tons of zinc, was shut down in November for an indefinite period.

As shown in the table below, prices of lead declined by about 2c per pound in North American markets and approximately 4c per pound on the London Metal Exchange. Zinc prices remained unchanged in North America while the producer price in Europe was reduced approximately 1c per pound in the first quarter of the year.

Lead

	<i>Canadian Currency</i>		London Metal Exchange
	New York c per lb.	Canada c per lb.	c per lb.
31st December, 1965	17.2	15.5	15.0
31st December, 1966	15.2	14.0	10.9

Zinc

	East St. Louis c per lb.	Canada c per lb.	Producers' Basis, London c per lb.
31st December, 1965	15.6	14.5	14.8
31st December, 1966	15.7	14.5	13.8

In 1966, 31% of the company's refined lead and zinc was sold in Canada compared with

In 1966, 31% of the company's refined lead and zinc were sold in Canada compared with 29% in 1965.

Cadmium production was 787 tons compared with 359 tons in 1965 when extensive plant revisions were in progress. Silver production was 6,609,000 ounces of which 63% came from company mines compared with 6,415,000 ounces and 49% in 1965. Production of gold from company sources was 63,000 ounces compared with 56,000 ounces in 1965. It is of interest to note that, of 16,000 ounces of gold recovered at Trail as a by-product, 11,000 ounces were refined to a high purity of 99.999+% and were sold at a substantial premium for use in the electronics industry.

Production of bismuth, tin, antimonial lead, indium and electronic materials resulted in total sales for this latter group of by-product metals of \$5,628,000 compared with \$4,864,000 in 1965.

The new rolling mill of Western Canada Steel at Vancouver was completed at year end increasing the rolling capacity to 165,000 tons per year. Construction of the steel ingot plant with a capacity of about 80,000 tons per year at Kimberley was successfully completed on schedule and production commenced during June. Steel ingots of excellent quality were produced from pig iron and shipped to Western Canada Steel. This represents the first fully integrated steel operation in Western Canada whereby finished rolled steel products are produced from British Columbia ores. In September Western Canada Steel acquired a lease and option on the facilities of Western Rolling Mills at Calgary, with a capacity of 50,000 tons of product per year.

The Wedge copper mine in New Brunswick produced 269,000 tons of ore compared with 272,000 tons in 1965 and the Benson Lake concentrator on Vancouver Island treated 283,000 tons of ore from Coast Copper Company compared with 292,000 tons in 1965.

Chemicals and Fertilizers

Total fertilizer produced was 965,000 tons com-

pared with 755,000 tons in 1965. The 1966 production was lower than anticipated because of technical difficulties in bringing to full capacity some of the new facilities installed in 1965. By the end of 1966 these difficulties had been largely overcome, although costs had not yet reached expectations.

In 1966, 43% of the company's chemicals and fertilizers were sold in Canada compared with 41% in 1965 and most of the balance was sold in the United States.

The volume of fertilizer sales in Canada increased substantially. However, because of new large tonnages available from both private and co-operative marketing organizations, competition was intense and prices were reduced to levels which do not provide acceptable returns on invested capital. The volume of fertilizer sales in the United States through Cominco American Incorporated also increased. However, here again, prices were under heavy downward pressure due to keen competition. The granular ammonium nitrate plant in Nebraska owned by this subsidiary commenced production during March and the new granular product enjoyed good market acceptance.

Sales of fertilizers outside of North America were minimal and consisted mainly of sales of ammonium sulphate to Australia and India. Total sales of chemicals for industrial purposes were at about the same level as in 1965. Inventories of all fertilizers and chemicals were approximately the same as at the close of the previous year.

Exploration, Research and Development

The importance attached to exploration, research and development continued to be stressed and expenditures in these combined fields increased by \$4.0 million during the year to a total of \$10.3 million.

During the year Pine Point Mines Limited acquired the adjoining holdings of Pyramid Mining Company Ltd. (n.p.l.) which added substantially to the ore reserves of this property.

At the Magmont lead mine, in southeastern Missouri, jointly owned by Cominco American

Incorporated and the Magnet Cove Barium Corporation, the shaft was nearing completion at year end and construction of the concentrator proceeded according to plan. The production from this concentrator (70,000 tons of lead concentrates annually) will be treated on a toll basis through a new smelter being built by American Metal Climax, Inc. Construction and operation of the Magmont property is under the management of Cominco American Incorporated and production is anticipated in the first quarter of 1968.

Excellent progress was achieved at the Sas-

katchewan potash project where sinking of the two production shafts was about half completed and the construction of the surface plant was well under way at year end. At Trail the construction of a sulphuric acid unit of 130,000 tons per year capacity is in progress. It will replace plants built in the 1930's which have become obsolete. The facilities at Calgary for the production of industrial grade ammonium nitrate were modernized and recommissioned.

The installation of a fourth generating unit of 120,000 h.p. at the company's Waneta hydro-electric power plant on the Pend d'Oreille River



Electrolytic zinc production in one of three cell rooms at the Company's metal production plants, Trail, B.C. Capacity of the zinc operation is 232,000 tons per year.

was completed and a fourth generator of 40,000 h.p. was ordered to complete the installation at the Brilliant plant on the Kootenay River. With the completion of the Brilliant plant, scheduled for 1968, the total installed capacity of company-owned power plants will be 850,000 h.p.

A new company, Mazak Limited, was incorporated in the United Kingdom to produce and sell zinc alloys in the United Kingdom market. This is a joint venture of Cominco Ltd. and the

Imperial Smelting Corporation and is now owned 50% by each of the principals.

Construction of the Cominco Binani Zinc Limited smelter in India was substantially completed at year end. Construction was delayed owing to general economic conditions in India and production is anticipated in 1967. The Mitsubishi Cominco Smelting Company Limited 40,000 tons per year lead smelter, in Japan, commenced commercial operations in October.



The Homestead Plant of Cominco American Incorporated at Beatrice, Nebraska, which commenced production of ammonium nitrate and nitrogen solutions early in 1966.



Personnel

The total number of employees of Cominco and all its subsidiaries was 10,145 at the year end compared to 9,965 at the end of 1965.

A collective wage agreement was signed for all British Columbia properties covering a two-year period and expiring on the 30th June, 1968. This agreement provided for an average wage increase of 18½% over two years. Wage rates were upgraded simultaneously at Pine Point Mines under the provisions of the labour agreement negotiated in 1965. A two-year agreement was also signed for the Con mine. As these increases exceed productivity gains, production costs have risen substantially. At the year end negotiations for renewal of the collective wage agreements were still under way at West Kootenay Power and Light Company, Limited and Western Canada Steel Limited.

Effective the 1st January, 1966 new retirement income plans for salaried employees and for hourly-paid employees were introduced. These plans are designed to provide improved retirement incomes and also provide for payment of disability benefits.

On the 14th April, Mr. G. H. Baillie, Vice-President, Special Duties of the Canadian Pacific Railway Company was elected a Director. At the Annual General Meeting of Shareholders held on the 28th April, the Honourable James Sinclair of Vancouver and Mr. S. E. Nixon of Montreal were elected Directors of the company, replacing Messrs. R. S. McLaughlin and R. D. Harkness, both of whom retired in accordance with Board policy. The company is deeply indebted to Messrs. McLaughlin and Harkness for their wise counsel and sound advice over many years as Directors of the company.

At a meeting of the Board of Directors held on the 28th April following the Annual General Meeting of Shareholders, Mr. W. S. Kirkpatrick, formerly Chairman and President, was elected Chairman and Chief Executive Officer. At the same meeting Mr. R. Hendricks, formerly Executive Vice-President, was elected President and Mr. R. D. Perry, formerly Vice-President, Finance, was elected Executive Vice-President. Effective the 1st September Mr. R. J. Armstrong,

formerly Manager, Exploration, was appointed Vice-President, Exploration.

The Directors wish to acknowledge their appreciation of the co-operation and service of the employees who have contributed so much to the progress of the company.

On behalf of the Board

A handwritten signature in cursive script, reading "W. S. Kirkpatrick".

Chairman.

A handwritten signature in cursive script, reading "R. Hendricks".

President.

Consolidated Balance Sheet at December 31, 1966

(with comparative figures for 1965)

Assets

	1966		1965	
<i>Current Assets :</i>				
Cash	\$ 4,998,000		\$ 5,307,000	
Notes, loans and other short-term investment contracts, at cost	16,562,000		20,614,000	
Government and municipal bonds, at cost (market value \$5,149,000)	5,344,000		9,144,000	
Accounts receivable :				
Trade	37,155,000		32,288,000	
Unconsolidated subsidiary companies	2,249,000		1,354,000	
Estimated income taxes recoverable	1,654,000		—	
Prepaid charges	3,875,000		4,143,000	
Inventory of raw materials and products, at lower of cost and realizable value	43,893,000		40,073,000	
Stores and materials, at cost less allowance for obsolescence	11,797,000	\$127,527,000	10,732,000	\$123,655,000
<i>Investments and Sundry Assets :</i>				
Investments (Note 2)	29,462,000		26,631,000	
Deferred charges	2,227,000		2,149,000	
Sundry loans and accounts receivable	3,276,000	34,965,000	1,025,000	29,805,000
<i>Fixed Assets :</i>				
Land, buildings and equipment at cost, less fully depreciated items written off and sales at realized prices	198,535,000		193,403,000	
Less accumulated depreciation (Note 3)	53,552,000		64,799,000	
	144,983,000		128,604,000	
Mining properties and development, at cost less amounts written off (Note 4)	56,626,000		24,325,000	
Less accumulated depletion	8,006,000		6,865,000	
	48,620,000	193,603,000	17,460,000	146,064,000
		<u>\$356,095,000</u>		<u>\$299,524,000</u>



Liabilities and Shareholders' Equity

	1966	1965
<i>Current Liabilities :</i>		
Bank loans	\$ 1,004,000	\$ 2,957,000
Accounts payable	23,668,000	20,161,000
Payments received in advance on sales contracts	1,562,000	9,000
Estimated income taxes payable	—	6,062,000
Dividends payable	15,035,000	15,034,000
	\$ 41,269,000	\$ 44,223,000
<i>Long-Term Debt (Note 5)</i>	14,389,000	11,737,000
<i>Minority Interest in Pine Point Mines Limited</i>	17,222,000	4,597,000
<i>Accumulated Tax Reductions Applicable to Future Years</i>	16,408,000	6,051,000
<i>Shareholders' Equity :</i>		
Capital :		
Authorized — 20,000,000 shares of no par value ; issued and fully paid 16,688,155 shares	24,651,000	24,651,000
Retained earnings	242,156,000	208,265,000
	266,807,000	232,916,000
<i>Commitments and Contingent Liabilities : (Note 6)</i>		
On behalf of the Board :		
W. S. Kirkpatrick } R. Hendricks } Directors	\$356,095,000	\$299,524,000

Consolidated Statement of Earnings

For the year ended December 31, 1966

(with comparative figures for 1965)

	1966	1965
Sales of products	\$224,566,000	\$211,173,000
Other revenue	4,186,000	4,495,000
	<u>228,752,000</u>	<u>215,668,000</u>
<i>Cost of sales :</i>		
Inventory of raw materials and products at beginning of year	40,073,000	32,484,000
Production, selling and general expenses	130,492,000	110,121,000
Custom ore and other materials purchased	17,435,000	24,682,000
Interest on long-term debt	689,000	353,000
Directors' remuneration	383,000	334,000
	<u>189,072,000</u>	<u>167,974,000</u>
<i>Deduct</i> inventory of raw materials and products at end of year	43,893,000	40,073,000
	<u>145,179,000</u>	<u>127,901,000</u>
	83,573,000	87,767,000
<i>Add :</i>		
Income from investments in unconsolidated subsidiary companies (1965 — including non-recurring dividend of \$2,500,000)	2,630,000	4,499,000
Income from other investments	1,900,000	2,087,000
Net gain on disposal of investments	61,000	275,000
	<u>4,591,000</u>	<u>6,861,000</u>
<i>Deduct :</i>		
Provision for depreciation (Note 3)	14,370,000	13,586,000
Provision for depletion (Note 4)	1,290,000	1,112,000
Provision for income taxes	14,600,000	22,848,000
Minority interest in net earnings of Pine Point Mines Limited (after deducting \$1,032,000; 1965 \$3,542,000 unrealized by parent company)	8,721,000	4,045,000
	<u>38,981,000</u>	<u>41,591,000</u>
Net earnings, to statement of retained earnings	<u>\$ 49,183,000</u>	<u>\$ 53,037,000</u>
Net earnings per share	<u>\$2.95</u>	<u>\$3.18</u>



Consolidated Statement of Retained Earnings

for the year ended December 31, 1966

(with comparative figures for 1965)

Amount at beginning of year

Add:

Net earnings per statement of earnings

Insurance reserve transferred

Gain on exchange of mining interests (Note 4)

Deduct:

Appropriation for dividends, \$1.80 in 1966 (1965 – \$1.80)

Amount at end of year, to balance sheet

	1966	1965
Amount at beginning of year	\$208,265,000	\$181,313,000
<i>Add:</i>		
Net earnings per statement of earnings	49,183,000	53,037,000
Insurance reserve transferred	—	3,951,000
Gain on exchange of mining interests (Note 4)	14,744,000	—
	<u>272,192,000</u>	<u>238,301,000</u>
<i>Deduct:</i>		
Appropriation for dividends, \$1.80 in 1966 (1965 – \$1.80)	30,036,000	30,036,000
Amount at end of year, to balance sheet	<u>\$242,156,000</u>	<u>\$208,265,000</u>

Notes to Financial Statements

1. Basis of Consolidation:

The financial statements of Cominco Ltd. are presented in consolidation with those of all subsidiaries in which it holds all the shares and of Pine Point Mines Limited, a 69.12% owned subsidiary. Other subsidiaries have not been included in the consolidation because they have different businesses from those of Cominco, or they have relatively limited economic life, or they are not significant.

Current assets and liabilities in foreign currencies are converted at exchange rates applying at balance sheet dates; non-current assets and liabilities in foreign currencies are converted on various appropriate bases.

2. Investments:

Particulars of investments are as follows:

	1966	1965
Unconsolidated subsidiary companies:		
Shares, at cost	\$17,831,000	\$17,472,000
Advances	2,067,000	1,930,000
Other companies:		
Shares, at cost less amounts written off and sales at realized values:		
Having a quoted market value (market value \$5,458,000)	1,780,000	1,560,000
Having no quoted market value	10,395,000	9,677,000
Income debentures, at cost (market value \$940,000)	1,000,000	1,000,000
Advances	2,289,000	749,000
	<u>35,362,000</u>	<u>32,388,000</u>
Less accumulated provisions for depletion of investments in mining companies	5,900,000	5,757,000
	<u>\$29,462,000</u>	<u>\$26,631,000</u>

NOTES TO FINANCIAL STATEMENTS (Cont'd)

Cominco's equity in the aggregate net earnings of unconsolidated subsidiary companies amounted to \$2,227,000 for 1966, compared with dividends of \$2,630,000 received from them. Cominco has not taken into the accounts its equity of \$2,761,000 in undistributed earnings (net of losses) of unconsolidated subsidiaries.

3. Depreciation:

In the main, depreciation for the group of companies is computed on each year's net plant expenditures (including land) evenly over a period of years until those expenditures have been fully depreciated. When that occurs the practice is to write off the recorded cost against the depreciation accumulation, so that only costs not yet fully depreciated are carried forward. Expenditures by Cominco are depreciated over thirteen years; expenditures by Pine Point Mines Limited over ten years.

4. Acquisition of Pyramid Properties:

On June 15, 1966, Pine Point Mines Limited issued 526,400 shares from its treasury to Pyramid Mining Company Ltd. (n.p.l.) in exchange for certain mining properties of that company. A value of \$50 each was attributed to the shares issued (quoted market value on the day was \$63.25), so that the recorded cost of the properties is \$26,320,000. The effect of the transaction in the consolidation is that a 9.12% interest in the net assets of Pine Point at June 15, 1966 has been relinquished, by way of a dilution of Cominco's equity, in exchange for a 69.12% interest in the properties acquired from Pyramid. This exchange has resulted in

a gain of \$14,744,000 credited to consolidated retained earnings, representing the difference between the historical carrying value of the interest relinquished and the recorded value of the interest acquired in the new properties. No depletion has been provided on the new properties, as they are not yet in production.

5. Long-term Debt of Subsidiary Companies:

	1966	1965
Cominco American Inc.:		
5½% Mortgage Notes, due January 1, 1980 (\$10,000,000 U.S.)	\$10,831,000	\$ 8,595,000
Bank loan pending long-term financing (\$1,900,000 U.S.)	2,058,000	—
Pine Point Mines Limited (minority interest):		
6% income debentures, redeemed 1966	—	1,552,000
Western Canada Steel Limited:		
First mortgage sinking fund bonds:		
Series "A", 5% Maturing January 2, 1972	250,000	300,000
Series "B", 6% Maturing January 2, 1972	250,000	290,000
Series "C", 6½% Maturing July 2, 1977	1,000,000	1,000,000
	<u>\$14,389,000</u>	<u>\$11,737,000</u>

6. Commitments and Contingent Liabilities:

	1966	1965
Commitments under construction in progress, estimated not to exceed	\$14,700,000	\$26,700,000
Sundry guarantees, commitments and claims, estimated	6,200,000	3,600,000

7. Directors' remuneration includes amounts paid to officers of the Company who are also directors.

Auditors' Report to the Shareholders

We have examined the consolidated balance sheet of Cominco Ltd. as at December 31, 1966 and the consolidated statements of earnings and retained earnings for the year ended on that date. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion, the balance sheet and the statements of earnings and retained earnings present fairly the financial position of the company and its consolidated subsidiaries as at December 31, 1966 and the results of their operations for the year ended on that date, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

VANCOUVER, B.C. February 17, 1966

HELLIWELL, MACLACHLAN & CO.,
Chartered Accountants

Principal Active Subsidiary and Affiliated Companies

Included in Consolidation

Cominco American Incorporated — 100% owned
President — F. E. Burnet
Head Office: Spokane, Washington, U.S.A.

On the 1st January, 1966 Cominco Products, Inc. was merged with this company, bringing together all the mining, mineral exploration, fertilizer and high purity metal activities of the company in the United States. Cominco American Incorporated holds extensive phosphate reserves in Montana and in 1966 produced and sold to Cominco for the Kimberley and Trail operations 382,000 tons of phosphate rock from Garrison and 210,000 tons of concentrates from the Douglas Creek mine and mill near Maxville. Cominco American Incorporated, in a joint venture with

Magnet Cove Barium Corporation of Houston, Texas, is developing the Magmont lead mine near Salem, Missouri. The main shaft was nearing completion at the end of the year and satisfactory progress is being made on the concentrator. The mine should be in operation during the first quarter of 1968.

The company is the principal outlet for Cominco fertilizer in the United States and maintains an extensive marketing organization throughout the western, intermountain and midwestern states. In addition it has an interest in several subsidiary and affiliated companies engaged chiefly in the distribution of fertilizers. The company's Homestead plant in Nebraska, which produces ammonium nitrate and liquid nitrogen fertilizers, was completed early in the year at a cost of \$15 million and is in operation. The company also markets certain Cominco metal products in the United States and at a plant in Spokane manufactures and markets preforms and wire for the electronics industry. Sales taken into revenue in 1966 totalled \$39,600,000 (U.S.).



Charging pig iron into a steel converter at Kimberley, B.C. Initial capacity of the conversion plant, which commenced operation in June, 1966, is 80,000 tons per year.

National Hardware Specialties Limited — 100% owned
President — D. G. McGorman
Head Office: Dresden, Ontario

This company owns and operates a zinc die-casting plant at Dresden and through its wholly-owned subsidiary, Luster Corporation of Canada Limited, operates a plating plant at Wallaceburg, Ontario. It also has a majority interest in Schultz Die Casting Company of Canada, Limited, with operations at Lindsay, Ontario. Sales from the three operations totalled \$5,802,000 in 1966.

Western Canada Steel Limited — 100% owned
President — G. H. D. Hobbs
Head Office: Vancouver, B.C.

This company owns and operates a steel plant in Vancouver and on adjoining Twigg Island. Its annual capacity is 100,000 tons steel ingots from which rolled steel products and industrial fasteners are manufactured. Construction of a new bar mill on Twigg Island was substantially completed at the year end. In September the company acquired a lease and option on the facilities of Western Rolling Mills at Calgary which produces reinforcing bar and has an annual capacity of 50,000 tons. The company also has a 50% interest in Hawaiian Western Steel Limited of Honolulu which produces reinforcing bar with an annual capacity of 40,000 tons.

Pine Point Mines Limited — 69% owned
President — W. G. Jewitt
Head Office: Trail, B.C.

Cominco acts as manager and agent for this important company which owns one of the world's major zinc/lead mines near Pine Point, N.W.T. Production of lead and zinc concentrates was at a high level and in addition shipments of high grade ore were made from this property throughout 1966. During the year the adjoining holdings of Pyramid Mining Company Ltd. (n.p.l.) were acquired, thus adding substantially to the ore reserves. Ore reserves at the 31st December, 1966 were 37.8 million tons containing 3.7 million tons of lead and zinc.

Other Subsidiary Companies

West Kootenay Power and Light Company, Limited
President — W. K. Gwyer
Head Office: Trail, B.C.

Cominco holds all the common shares and 24% of the preferred shares of this company which owns and operates a hydro-electric power plant on the Kootenay River and a distribution system providing public utility service in southern British Columbia. In 1966 total sales of firm energy were 563,208,000 kwh compared with 503,007,000 kwh in 1956. The company also operates Cominco's hydro-electric plants under management contract.

Pacific Coast Terminals Co. Ltd. — 74% owned
President — E. A. Mitchell
Head Office: New Westminster, B.C.

This company owns and operates storage warehouse and dock facilities at New Westminster, B.C. and operates the bulk-loading facilities of its 72% owned subsidiary, Pacific Coast Bulk Terminals Limited at Port Moody, B.C. Extensive expansion of dock and bulk loading facilities neared completion at the end of the year. In 1966 materials handled through both facilities totalled 2,318,000 tons.

Rycon Mines Limited — 60% owned
President — B. E. Hurdle
Head Office: Yellowknife, N.W.T.

Cominco mines and treats the gold ore of this company in conjunction with the adjoining Con operations in the Northwest Territories. In 1966, 50,600 tons of ore were mined containing 1.2 oz. gold per ton.

Coast Copper Company Limited — 83% owned
President — B. E. Hurdle
Head Office: Trail, B.C.

This company owns a copper mine in northern Vancouver Island which Cominco operates under management contract. In 1966, 282,800 tons of ore containing 1.4% copper were mined and treated in Cominco's adjoining mill at Benson Lake.

Sunro Mines Limited — 77% owned
President — B. E. Hurdle
Head Office: Trail, B.C.

This company has a copper property on Vancouver Island which is presently under lease on a royalty basis to Cowichan Copper Company. Operations were suspended in September due to financial difficulties of the latter company.

Affiliated Companies

Cominco Binani Zinc Limited
Chairman — G. Binani
Head Office: Calcutta, India

Cominco has a 40% interest in this company which was incorporated in 1962 by Cominco and Metal Distributors Limited of Calcutta. Construction of the 22,000-ton zinc smelter and sulphuric acid plant was delayed due to general economic conditions in India. Production facilities were substantially completed at the year end and metal production anticipated early in 1967. The plant is located in southwest India near Cochin in the State of Kerala.



Mitsubishi Cominco Smelting Company Limited
President — Takuhei Oishi
Head Office: Tokyo, Japan

Cominco has a 45% interest in this company which was incorporated in 1965 jointly by Cominco and Mitsubishi Metal Mining Company Limited of Japan. Construction of the 40,000-ton lead smelter at Naoshima, Japan was completed in May, 1966. Refined metal production from the treatment of lead concentrates purchased from Pine Point Mines Limited commenced in July.

Cominco-Gardner G.m.b.H.
Chairman — J. A. MacKinnon
Head Office: Dusseldorf, West Germany

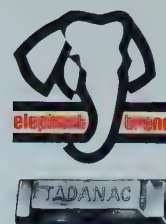
This company was established in 1963 by Cominco and Henry Gardner & Co. Limited of London who each hold a 50% interest. Its purpose is to promote sales of Cominco and other metals in Europe and otherwise engage in marketing activities.

The Canada Metal Company Limited
President — Carleton Smith
Head Office: Toronto, Ontario

Cominco acquired 50% ownership of this company in 1965 from National Lead Company in the United States. The Canada Metal Company has plants in Toronto, Scarborough, Montreal, Winnipeg, Calgary and Vancouver for processing non-ferrous metals and alloys, producing lead oxides and refining secondary metals.



Casting type metal at one of several plants of
The Canada Metal Company Limited in which Cominco holds a 50% interest.



Products

Metals

Lead, Zinc, Silver, Bismuth, Cadmium, Indium, Gold, Antimonial Lead, Zinc Dust, Pig Iron

Concentrates

Zinc, Lead, Copper and Tin

Fabricated Metal Products

Zinc Extrusions, Zinc Die Castings, Cadmium and Zinc Plating Anodes, Zinc Anodes for Cathodic Protection, Steel Fasteners, Light and Medium Structural Steel Products

Electronic Materials*

High Purity Metals (99.999% and 99.9999% Pure)

Aluminum, Antimony, Arsenic, Bismuth, Cadmium, Copper, Gold, Indium, Lead, Silver, Tin, Tellurium, Thallium, Zinc

Preforms and wire also available

Compound Semiconductors

Indium Antimonide, Indium Arsenide

Thermo-Electric Materials

Bismuth Telluride

*Available in fabrications to customers' specification.

Chemical Fertilizers

Ammonium Sulphate, Ammonium Nitrate, Urea, Anhydrous and Aqua Ammonia, Nitrogen Solutions, Ammonium Phosphates, Ammonium Nitrate-Phosphates, Complete Fertilizers, Ammonium Phosphate Solutions, Phosphoric Acid, Nitrogen-Sulphur Solutions, Zinc Fertilizer Compound

Chemicals

Ammonia, Ammonium Nitrate, Urea, Chlorine, Caustic Soda, Sulphuric Acid, Sulphur Dioxide, Urea Feed Compound



Expanded facilities of Pacific Coast Bulk Terminals Ltd. at Port Moody, B.C. were completed early in 1967. Potash, coal, sulphur, woodchips and similar commodities are moved from this modern terminal into large bulk carriers.

Artist's sketch of the
Canadian Pacific-Cominco Pavilion at Expo '67.



The Four Pillars

a profile of



Cominco

AR48



FOREWORD

The year 1966, in which this brochure is published, marks this Company's Diamond Jubilee Year.

Looking back over the span of sixty years, all of us who are presently charged with the stewardship of this Company cannot but feel a sense of pride in what our predecessors accomplished. Their achievements gave the Company the opportunity to grow, until today its scope is international. We in turn, wish to hand along to our successors even greater opportunities in the future.

For some time, Cominco has been engaged in a program of growth and modernization. This year, in keeping with this program, the long-established name "The Consolidated Mining and Smelting Company of Canada Limited" has been replaced by COMINCO LTD. The distinctive new logotype, shown at the right, is an integral part of this change of name, and will shortly become known wherever Cominco does business around the world.

To mark Cominco's sixtieth milestone, we commissioned a Canadian organization to prepare this brochure. They were asked to retain a Canadian writer who would portray, on paper, not what we told him of ourselves, but rather how he saw us.

"The Four Pillars" was written by Leslie Roberts, a well-known Canadian writer. He visited many of our installations. The words which appear in this brochure are his words and thoughts, to tell you of Cominco as he sees it today — and tomorrow.

On behalf of all of us in Cominco, we hope you will enjoy reading "The Four Pillars".

W. S. KIRKPATRICK
Chairman

R. HENDRICKS
President

The Four Pillars

BY LESLIE ROBERTS

A well-known Canadian writer and public affairs commentator, Mr. Roberts is the author of sixteen books. He has authored innumerable articles on the Canadian scene for Canadian, United States and British publications. He was elected a Fellow of the Royal Society of Arts of London, England in 1965, an honour seldom conferred upon Canadians in the field of letters.



COMINCO LTD./630 DORCHESTER BOULEVARD WEST
MONTREAL, QUEBEC, CANADA

SEPTEMBER 13, 1966

In visiting, researching and studying the activities of any great corporate enterprise and empire, one is bound to begin by stating almost obvious generalizations and commenting briefly on them.

The company, of course, is Cominco Ltd. Known for the first sixty years of its life as The Consolidated Mining and Smelting Company of Canada Limited, it had its beginnings in the heart of the Canadian Rockies in southeastern British Columbia close to the United States border. From comparatively humble beginnings have come the world's greatest lead-zinc mine and its ancillary units at Kimberley and the great smelting, refining and chemical processing plants at Trail, 85 crowflight miles to the southwest and strategically on the route to the Pacific world port of Vancouver.

The first generalization is bound to be that no operation of the magnitude of today's Cominco can, in the short span of 60 years, be measured by any yardstick but that of the sum-total of the skills and talents of its people.

One thinks of the hard-rock miner in the mountain depths of the Sullivan Mine and of the scientist constantly in search of new technologies, and uses for them, in the Cominco Product Research Centre at Sheridan Park on the outskirts of Toronto.

And again of the skill of the men who have brought a great new zinc-lead mine into production at Pine Point on the shore of Great Slave Lake, almost 500 miles north of Canada's northernmost big city, Edmonton, Alberta. And one thinks of the talents of the geologists — the "rock doctors" — without whose ingenuity the deposit never would have been found.

The range of contributors is astounding. There are skilled salesmen of chemical fertilizers on the Canadian prairies or in the northern tier of states next door, the talents of a Cominco



Locations of the North American activities of Cominco, its subsidiaries and affiliates

HEAD OFFICE

Montreal

MINES

Lead-Zinc
Kimberley, Salmo,
Riondel, Pine Point,
Bixby
Copper
Benson Lake,
Newcastle
Gold
Yellowknife
Potash
Vade
Phosphate
Garrison,
Hall

METALS

Trail, Kimberley,
Vancouver

METALS FABRICATION

Lead-Zinc
Montreal, Toronto,
Scarborough,
Winnipeg, Calgary,
Vancouver
Zinc
Dresden, Wallaceburg,
Lindsay
Iron & Steel
Vancouver
High Purity Metals
Spokane

CHEMICALS & FERTILIZERS

Trail, Kimberley,
Calgary, Regina,
Beatrice

POWER

Waneta and
5 Kootenay River
plants

SHIPPING

New Westminster
and Port Moody

RESEARCH

Trail, Montreal,
Sheridan Park

SALES OFFICES

Montreal, Sheridan
Park, Winnipeg,
Saskatoon, Calgary,
Vancouver,
Spokane, Portland,
Fresno, Minn-
neapolis, Lincoln

EXPLORATION

Montreal
Toronto
Trail
Vancouver
Spokane



**Cominco's
North American
Interests**



Pat Sullivan — co-discoverer of the world famous Sullivan Mine.

engineer advising on the installation of a lead smelter in Japan or of another engineer in India — this time a specialist in zinc. There are the men in the field, constantly carrying on the search for promising new mining prospects to develop, not merely in Canada but, among other places, in Britain, France, Spain, Portugal, Australia and Greenland.

Cominco's people have also reached southward to the United States to help bring in a major lead mine in Missouri, phosphate mines in Montana and a fertilizer complex in Nebraska.

One looks at all this and looks ahead again and thinks of an expert watching the dials in a power plant on the Kootenay or Pend-d'Oreille rivers, or a laboratory technician at Trail. These are so few among the thousands of men responsible for keeping the wheels turning and the plants running — machinists, welders, plumbers, electricians, members of almost every skilled trade.

Then thoughts turn to men perched high in a Montreal skyscraper, the corporation's head office policy-team, its planners from finance to explorations, from administration to research and sales — men responsible for an operation that is constantly in flux. And there are other planners and administrators on the spot in the vast operations which fan out from what is really "the Cominco city", Trail, in the heart of the Kootenays.

One is awed by it all, knowing the story of the beginnings, almost blinded by the expansion into the present, and wondering how much more the future may hold. After all of it the observer comes back to the beginning : and this is primarily People. This great enterprise is no greater than the sum-total of the skills, talents, drive, imagination, knowledge, prudence and courage of the great army, thousands in number, which is Cominco's people; all of them, no matter what each does, where he works or what his personal status may be.

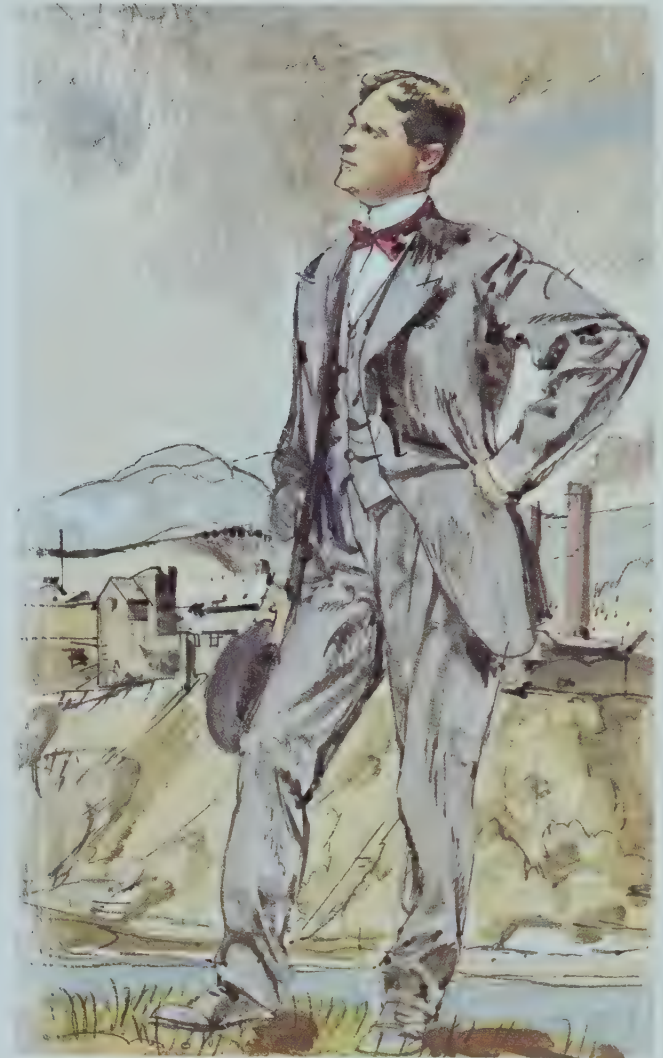
To me, that sums up what Cominco really is.

The second generalization, much briefer, also contains a strange contradiction. Modern communications have reduced the size of the world we live in to less than a tenth of what it was, say, prior to World War II. Hence such enterprises as Cominco no longer visualize their home-countries (in Cominco's case Canada) as restricting their operations. Today's Cominco, and tomorrow's, is global in every connotation of the term.

Yet (and this is the contradiction) the great global expansions of the people who produce and *do* things — the Enterprisers — are happening at a time when nationalistic chauvinism has seldom been as vocal, and men and nations as jealous of their sovereignties. Equally, however, at no time in man's history has there been a greater need or call for the very products and skills which are the reasons for Cominco's existence. New nations need fertilizers to grow their crops and feed their people. They need metals to build their embryo industries. They need access to the talents available only in the sophisticated nations to teach them the know-how. The world has not only grown smaller, its whole "shape" has changed and is changing. These are among the challenges such a company as this must be ready to meet — and does.

The third and final generalization is perhaps the most important for Cominco's future. The Company has become an enterprise of wide diversification in its productivity and is constantly widening its horizons. Yet, with the expansion, whether geographic or in terms of product, the emphasis always lies with the Company's basic raw materials and skills — from both of which come those products for which Cominco is known in many parts of the world.

The pattern for the people was set in the beginning. First



F. Augustus Heinze — builder of the first smelter at Trail.

there was Pat Sullivan, a member of the original team which staked the famous mine (away back in 1892) that carries his name to this day. By legend, Pat must have been a handy man with a prospector's pick and a hardy broth of a fellow in his brief visits "to town".

Then there was Augustus Heinze, by practice a developer but by instinct a gambler, out of Butte, Montana, who built the first copper-gold smelter close to the mines at Rossland, which is virtually "just up the hill and around the corner" from the present-day complex at Trail. Rossland's long-since exhausted mines indeed were the reason for the birth of Trail. Then in 1898, the Canadian Pacific Railway came along and bought Heinze out, being perhaps more interested in certain railroad rights which Heinze, sharp trader that he was, had acquired.

The Railway then formed the Canadian Smelting Works and blew in the first lead furnace at Trail, as lead-zinc ores became

available from mines at Slocan and elsewhere in southeastern British Columbia. It was to have been, one gathers, primarily a custom smelter.

Meanwhile, Sullivan's mine at Kimberley had been shut down, mainly as a result of metallurgical problems. In 1909 what by then had become The Consolidated Mining and Smelting Company of Canada Limited (successor to Canadian Smelting Works) first leased, and three years later acquired outright, the Sullivan. The mine remained a metallurgical problem child until 1920. Not until its ore-treatment processes were solved could the door to its immense, but complex, treasure chest be unlocked. The problem was finally resolved by the adaptation of what metallurgists call "the differential flotation process". At the Sullivan this became the first commercial application in the world of a method now universal. But, while this one of many Cominco "firsts" was being worked out, through lean and difficult years, the Canadian Pacific Railway did much to keep Cominco alive — a risk neither has had cause to regret.

So, the beginnings. A story of hardy men — in rough mining terrain and far afield.

Cominco today – the mines and the metals...

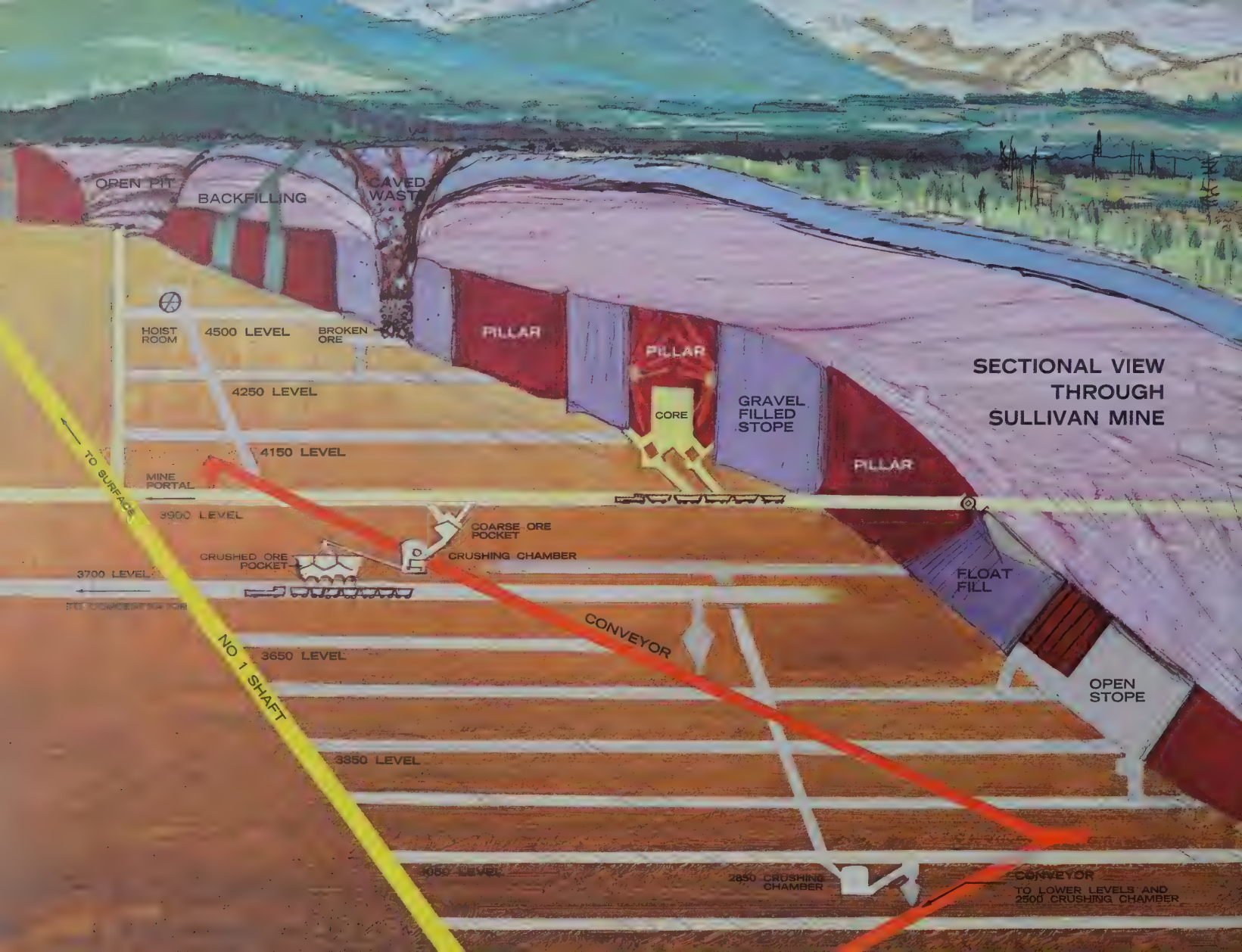
The Sullivan, near the town of Kimberley, has now been boring into its mountain for over fifty years, during which some 94,000,000 tons of lead-zinc ore have been taken out of its entrails. At least another 73,000,000 tons remain in the Sullivan proper and its junior neighbors, the Bluebell and the H.B., two mines whose previous operators had regarded their ores as exhausted, but which Cominco geological thinking and exploration restored, not only to production but to longevity as



Early smelter at Trail circa 1906.

Kimberley, British Columbia, in its beautiful mountain setting, is the site of Cominco's Sullivan mine and concentrator, chemical fertilizer, and iron and steel operations.





OPEN PIT

BACKFILLING

CAVED WASTE



HOIST ROOM

4500 LEVEL

BROKEN ORE

PILLAR

PILLAR

CORE

GRAVEL FILLED STOPE

PILLAR

SECTIONAL VIEW
THROUGH
SULLIVAN MINE

4250 LEVEL

4150 LEVEL

MINE PORTAL

3900 LEVEL

COARSE ORE
POCKET

CRUSHING CHAMBER

CRUSHED ORE
POCKET

3700 LEVEL

TO SURFACE

NO. 1 SHAFT

3650 LEVEL

CONVEYOR

FLOAT
FILL

OPEN STOPE

3350 LEVEL

2850 LEVEL

2850 CRUSHING
CHAMBER

CONVEYOR
TO LOWER LEVELS AND
2500 CRUSHING CHAMBER

well. The Sullivan, then, has been the basic foundation of the Cominco enterprise and the point-of-origin of the great Canadian metallurgical and chemical complex at Trail, where, among many other items, Cominco people pioneered commercial electrolytic lead refining and did much original research in the recovery of sulphur from metallurgical operations. Such achievements are mentioned here as a means of defining what the teamwork of people who are given a free hand to think, to exchange ideas and to work, can mean.

Specifically, if one were writing a history, he would begin with the acquisition and early development of the Sullivan and trace the Cominco course, step by step, from that point forward. But this is not a formal work of history.

Or, if he were writing prophesy, he would begin by peering into the future and working backwards. But this is not a “flash-back”, either.

In the circumstances, it is perhaps better for an outsider-looking-in to examine the present in relation to the “critical path” of tomorrow’s Cominco.

When one looks at the present, he sees four pillars, which support today’s and will support tomorrow’s Cominco in the kind of changing world we have been discussing.

The four pillars are Cominco’s mines, metals, chemicals (including the Company’s wide range of fertilizers) and its power — hydro power which drives this great industrial machine. Obviously, there are other “supports” as well — exploration, product and market research, keen financial know-how, professional knowledge of the world and its needs in their infinite variety, ranging from metal building products to special fertilizers, to name but two. We shall look at some of these as we examine the corporation, always bearing in mind that the essential ingredient



Miners going on shift — 3900 level portal, Sullivan Mine.

Surface buildings, Sullivan Mine.





of constructing an edifice is not merely materials but people.

Pillars are built by people.

Even so, one is forced to begin with what the whole mining world calls simply “The Sullivan” and the great metallurgical and chemical complex which is the *raison d’être* of the City of Trail, among many other things. The mine is, at bottom, the essence of Cominco — and the reason the corporation can reach out boldly into new worlds. “The Sullivan”, as the world’s largest producer of lead and zinc and a variety of side products like iron in quantity and a trickle of valuable indium, was both the beginning and the continuing keystone of Cominco’s arch. Today there are other supports for the arch, but the essentials came from the Sullivan.

The main portal leading into the Sullivan “hill” is an adit located at the 3900-foot level (measured in feet above sea level) from which the extraction of ore is carried on both upward and downward. There are fourteen levels, from 4600 feet to 2650. Three underground crushers reduce the ore to 2" diameter before it is taken to the surface. The Sullivan, if not the most mechanized mine of its kind in the world, certainly ranks close to it.

The underground terminus of the rail line leading in through the 3900-level portal gives one the impression of a major railway switching yard, moved indoors. From here fan out many miles of trackage serving the interior of the mine proper.

From the main crushing station the broken ore is moved to the concentrator, four miles away, by standard gauge mine trains, as many as forty ore cars in length. The Sullivan could be a book in itself, if only for the complex planning required for the economic extraction to the maximum possible value of every ingredient of this magnificent, almost unique, Canadian natural resource.



Flotation cells are used to separate the major mineral values in the Sullivan ore.

Sullivan Concentrator, Kimberley, B.C.



Switching station 3700 level — main ore haulage tunnel, Sullivan Mine.



From the concentrator the Sullivan “product” moves across country to the huge complex that is Trail, British Columbia. There it’s joined by concentrates from other Cominco mines and all are smelted to produce some 200,000 tons each of lead and zinc a year — about five per cent of the world’s supply. Each year Trail also processes millions of ounces of silver and thousands of gold, plus bismuth, cadmium, antimonial lead and that previously-mentioned, rare and valuable indium. Cominco is the world’s largest producer of the last.

All these metals emerge and move to market from the complexity of buildings which rise on one of the hills above busy Trail. There, too, are great research facilities where scientists and technicians labour constantly on product-improvement. To keep all this moving, standing alone and almost aloof in its quiet dignity, is another building. It houses the men and their staffs who direct the whole of this great western operation — and more besides. Small wonder that to many people over the world the words “Cominco” and “Trail” are synonymous.



Opposite page: Metallurgical operations, Trail, B.C., showing a portion of the city and the Columbia River.

Lower left: Checking lead prior to shipment.

Lower right: One of three cell rooms used for electrolytic refining of zinc.





But to turn back briefly to Kimberley. After long years of technical and market research to find how best to dispose of the large residues of iron in the concentrator tailings, a plant was put up to produce pig-iron. The next important and logical step was acquisition of Western Canada Steel and its Vancouver mill, hitherto working solely from supplies of scrap — the huge automobile scrap pile covered acres the day the writer was there. Today, the long-cherished dream of an integrated iron and steel complex for British Columbia has become a reality — the first in Canada's west.

Meanwhile the "pond" of iron concentrates grows, the output of "pig" increases, and finished steel has been added to Kimberley's output, thus assuring through the facilities of Western Canada Steel's plant a complete steel operation, anxious and ready to grow as the western market expands. As it does (and Canada's West is "boom country"), the combination of Kimberley and Western Canada Steel is geared to meet it.

Left: Casting continuous steel ingots, Western Canada Steel Limited, Vancouver, B.C.

Right: Charge floor, electrothermic iron furnace, Kimberley, B.C.



*Right: H. B. Mine,
Salmo, British
Columbia.*

*Below: Open pit
operation, Pine Point
Mine, Northwest
Territories.*



To travel by air from the senior of Cominco's great mines to its most junior in Canada, Pine Point, is a remarkable experience for the human eye. As the first is imprisoned among high, rugged, snow-capped peaks, the second is imbedded in the heart of thousands of square miles of some of the flattest country on earth. This great billiard table reaches from south of the





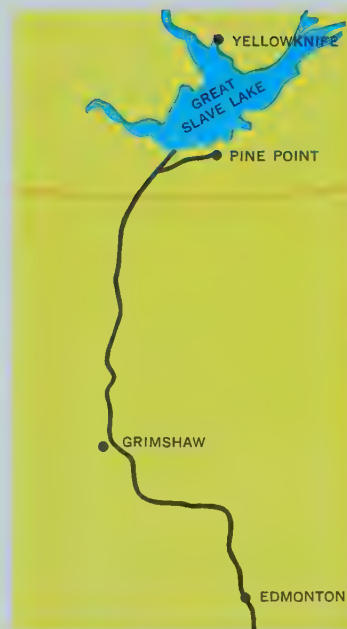
Alberta boundary and north of the Peace River, and takes in the Slave River, running lazily north and emptying into the vastness of Great Slave Lake.

The Pine Point open pit workings, adjacent to a model government townsite, began feeding the 5,000-ton mill in late autumn of 1965. For a year before, however, some of the richest ore had been shipped south to Kimberley and Trail over the railroad which had been pushed north from the Peace River country — a railroad made possible only by the opening of Pine Point and the substantial annual shipments it is able to guarantee.

But Pine Point's history in one sense can be traced backward almost as far in time as the discovery of the Sullivan in the heart of the Rockies. The region abounds in its own peculiar mineral-mythology. One tale tells of Indians from nearby Fort Resolution using "heavy stones" as sinkers or weights for their fishing nets. It is known that parties heading for the Yukon in the rush of '98 paid the area serious, if brief, attention, to the point that a miniature "rush" developed. But whatever the content of the rocks, it wasn't gold — and the rushers moved on without further investigation.

In 1914 a mining engineer named Gibbons staked claims on what is now a section of the Pine Point deposit. He enlisted, and was subsequently killed, in World War I. Title to his claims lapsed.

The first serious prospecting of the area began in 1920, financed by a Boston group. Much to their surprise, a second group said it had staked the ground in 1908 and had kept its claims in good standing through payment of annual dues. A search of government records followed. Settlement was made with the second group to avert what might have been a long-drawn lawsuit.



"Without a railway to haul its concentrates to market, Pine Point could not have happened. But without Pine Point there would be no railroad crossing the great northern flats of Alberta, over the border into Canada's Northwest Territories and on to the coast of that huge inland sea called Great Slave Lake. Steel undoubtedly has been laid in more difficult country (as say, to the iron deposits of Labrador). But seldom, if ever, has track been driven through emptier country than the Slave Lake line. For more than thirty years the handful of people living beyond Grimshaw, terminus of the Northern Alberta Railway, had lobbied and pleaded for a line to help open the country. Pine Point ore finally made it feasible. Now the major portion of Pine Point's high grade ores and concentrates travel over Canadian National and Canadian Pacific lines to the big metallurgical plants at Trail, B.C. — a distance of 1400 miles.

However, Pine Point's output is no longer the only freight carried. New industries are springing up, and sending their goods to market over the line made possible by Pine Point." — (L.R.)

Below: Homes in the new Pine Point townsite compare favourably with suburban living anywhere in Canada.





Loading broken ore, Pine Point open pit operation.

A period of relative inactivity followed until 1928, when the Boston group joined forces with Atlas Exploration which, in the following year, united with Cominco and Ventures Limited. Considerable surface work and drilling was done, and a shaft was sunk 94 feet into one of the orebodies. Then came the Depression and nothing of much moment happened at Pine Point until after World War II, when drilling was done in 1947.

But behind the scenes very definite and vital events were taking shape. Cominco's geological staff were developing the theory that the deposit south of Great Slave Lake, might well duplicate in formation, content and nature, the lead-zinc orebodies of the state of Missouri. To put the theory to the test would call for an intensive study of a major area.

Application was therefore made to the Canadian government for sole exploration rights for a three-year period over an area hundreds of square miles in extent. It was granted, but certainly with the condition that the period must be short in time and long in terms of dollar-expenditure. Intensive examination followed, resulting in the discovery and delineation of a major series of flat-lying, lead-zinc "clusters", occurring (in general terms) diagonally across the concession area and mineable, certainly in part, by the open pit, or "quarrying" method. A large number of claims were staked and the remainder of the area abandoned. One finds oneself inescapably thinking again of the teamwork and team-thinking demanded of the Cominco people directly and indirectly associated with the coming-into-being of Pine Point. The range again runs from those who had to find the money, to the geologists who held the magic key, and on to today's hardrock miner.

By this time, the early 1950's, Cominco had become the virtual holding company for Pine Point Mines Limited. But to make

operations economically feasible it was again necessary to confront the great bugbear of the Canadian north — the need for low-cost transportation and communications. The usual series of studies, terminating in a Royal Commission, followed, which, not surprisingly, used up almost ten years' time. But the mine was developed and brought to production. The railroad arrived and the shipments began. Another Sullivan? How many miracles can happen under one corporate roof? Large and rich with promise — and finally, assurance of long life.

In this brief sketch of the life story of Pine Point, over a period of more than half a century before production actually came to the shores of Great Slave Lake, you have one phase of the whole history of mining, seen in microcosm . . . the optimism and the hopes that were dashed; capital risked and lost; the renewal of search under new aegis; new efforts and new disappointments; depression and war; and finally, the long hard drive to production and profit, resulting from two basic factors — geological theory and skill, plus the availability of major capital resources with which to take the final successful risk.

Not all the promising prospects become producing mines by any means. Even some of those which go into production soon fall by the wayside. In this context, one thinks of a simple but clear comparison.

On one side is the Company's Con gold mine in Yellowknife, which the writer first saw when the "town" comprised no more than half a dozen log buildings (today's Yellowknife is the one place in all Canada's vast Northwest Territories — a region as large as India — which merits the title "city"). That was as long ago as 1937. Yet in 1965 the Con mill treated 170,000 tons of gold-bearing ore, from the Con itself and the adjoining Rycon and Vol mines. Had anyone been asked about the lifetime

possibilities of the Con, about the time Yellowknife began to look like a town in more than name, I don't profess to know what the answer would have been. But it is a reasonable guess he would not have foreseen either of these mines — especially the Con — would still be going strong in 1966, still making profits. The answer has been mentioned in other contexts — in this case the intelligent application of geological theory and teamwork, and the calculated risk of carrying it out.

But to illustrate the other side of the story, one thinks back to Cominco's Box property, south of the Alberta boundary, adjacent to Lake Athabaska — a hopeful prospect which went all the way to production, even to development of its own hydro-plant. The brief life of the Box mine ended in 1942, though its power plant was subsequently leased to Eldorado, the Canadian government's uranium-producing operation. Such are the risks



Early headframe, Pine Point.

of mining. But, more and more, they become *calculated* risks, thanks to the developments of geological science and, with science, talent, knowledge and skill. But the search is constant, for any mine is a declining asset from the moment when its first ton of ore is hoisted and sent to the mill. Hence the endless search, which has become world-wide, as witness the growing list of countries, in addition to Canada, in which Cominco's exploration currently proceeds.

But difficult though the search may be, for the minerals hide in strange, out-of-the-way places, failures are compensated by the occasional success. One thinks of the Wedge mine in New Brunswick, a copper-producer today, a raw prospect when Cominco acquired it less than ten years before the writing of this brochure. After six long years of drilling and delving, the Wedge came into production in 1962 with Japan as the ultimate consumer of

its concentrates. At "the other end of Canada" the Coast Copper mine, near the northern tip of Vancouver Island, was brought into production the same year, again with Japan as the market for its copper and iron concentrates.

In the United States, phosphate mines in Montana; lead in Missouri; and, back in Canada again, potash soon to come from the world's largest known deposit in Saskatchewan. All this is typical of Cominco's constantly growing world. Nobody knows what discoveries may be made tomorrow, nor where they will be. And it all began when Pat Sullivan's party staked their claims on a hillside near where the City of Kimberley now stands.

Chemical fertilizers for the war on hunger

Of the intricacies of metallurgy this writer professes to know nothing or, one might say, just enough to recognize his own ignorance. But we have talked of the great complex at Trail — its smelters and refineries, the mysteries (to the layman) of its ultra-ultra-high purity metals and their products, as well as of its world contribution in lead and zinc. Now we go back again to Trail, where we can begin to look at another of Cominco's great pillars — the chemicals, with emphasis on fertilizers, of which the Company has become one of the world's great producers.

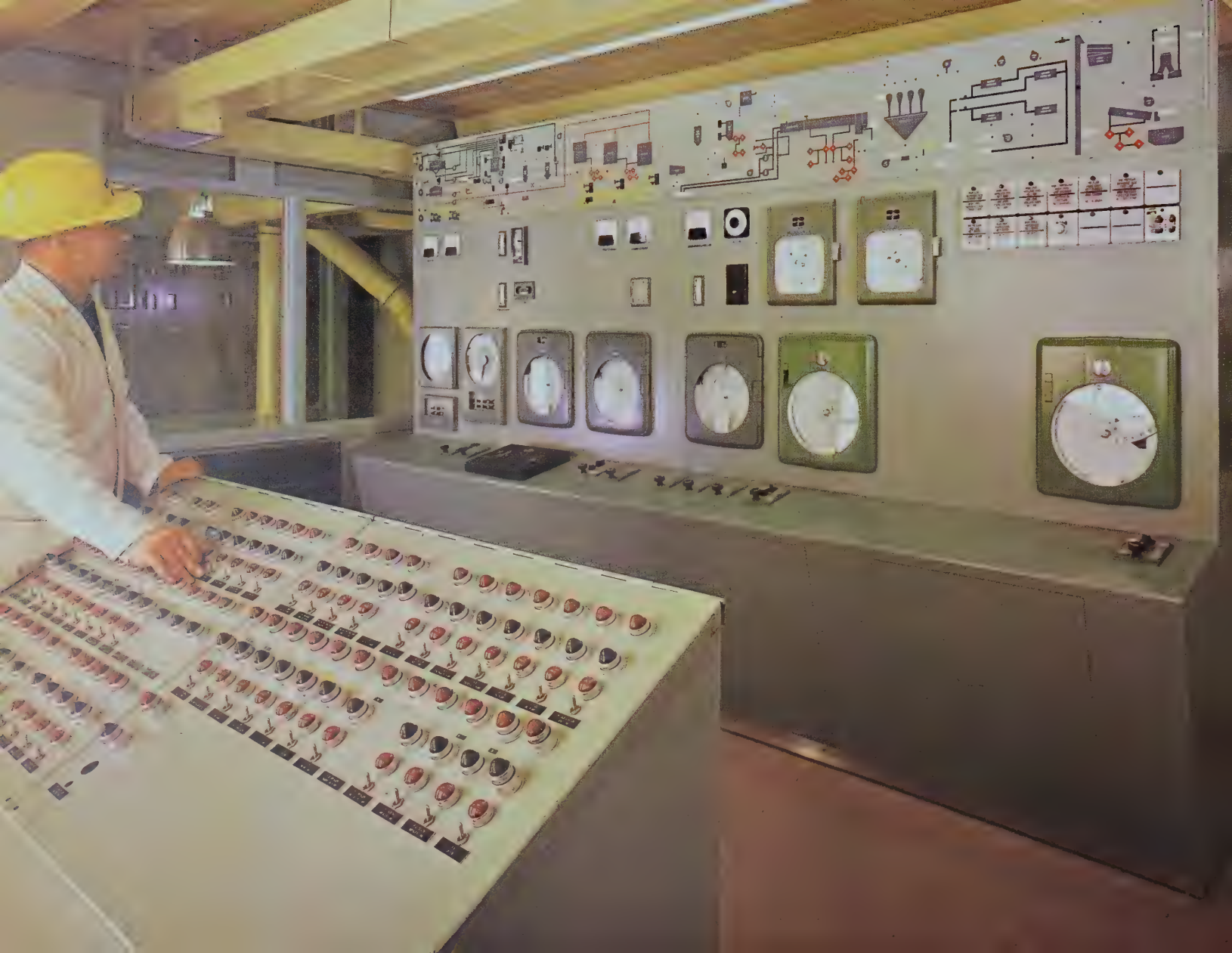
The significant growth of Cominco's chemical operations began at Trail in 1931 and has spread during the intervening years east to Kimberley, B.C., Calgary, Alberta and Regina, Saskatchewan and south into the United States, where a major fertilizer plant is operating in Beatrice, Nebraska. Over the years, the Company's Elephant Brand chemical fertilizers have been found almost anywhere in the world where the effort has been made to increase



Con Gold Mine, Yellowknife, Northwest Territories.

Chemical and fertilizer operations, Trail, B.C., with metallurgical plants, Columbia River, and City of Trail in the background.





the fertility and productivity of the soil. Today the principal demand for Elephant Brand is at home, growing more food for ourselves, but especially for a hungry world beyond our borders.

The greatest of these fertilizer plants by far stands high on the hills above Trail, peering down on the stacks of the smelters and refineries. It is a complex of modern buildings, marked by an absence of hustle and bustle. The layman-writer can at least report the experience of gazing at a series of tanks and vats and at dials innumerable in a group of buildings, some as clean and antiseptic as a hospital operating room, the tenants of which can only be described as "needle watchers". He learns that in one building ammonia is produced, that in another ammonium sulphate is the output, and that in still another, sulphuric acid (recovered from the metallurgical processes "down the hill"), and phosphate rock from Cominco's Montana mines, plus ammonia itself, are combined to produce basic fertilizer products.

The nearby ammonium nitrate plant was built and operated by the Company at the Canadian government's request during World War II. It has continued through the intervening years as a major fertilizer producer. Newest member of the chemicals complex at Trail, which was completed in 1961 and expanded two years later, produces chlorine and caustic soda for the region's forest-products industry.

The eastward move to erect new chemical plants dates back, like the nitrate plant at Trail, to the years of World War II, when Cominco was asked to build and operate a similar plant at Calgary, which was subsequently purchased by the Company. The basic purpose was to build close to sources of natural gas and use this raw material to produce the key fertilizer ingredient — ammonia. Here one notes another Cominco "first" — the commercial adaptation of a British method to produce am-



Strategically-located distribution facilities are vital to the handling of seasonal peaks of fertilizer demand. Fertilizer warehouse, Cominco American Incorporated, Spokane, Washington, U.S.A.

Artist's conception, Homestead fertilizer plant, Cominco American Incorporated, Beatrice, Nebraska, U.S.A., completed early 1966.



Centralized control, made possible by a high degree of instrumentation, is essential in today's chemical plants. Fertilizer operations, Regina, Saskatchewan.



Examining drill cores at Cominco's potash property. Project calls for twin shafts to a depth of over 3000 feet.

"The word 'Saskatchewan', to most people is not merely the name of a Canadian midwestern province, but has been a synonym for 'wheat'. Today it has an added connotation — one which will indubitably take its place alongside wheat, in the economy of the Province. The new synonym is 'potash', billions of tons of this vital plant food underlying its rich grain fields. One serious estimate says at least 200-billion tons of the 'pink stuff' lie there, awaiting mining, hoisting and shipping to the hungry markets of the world.

Among the handful of great developers of this new prairie Eldorado, COMINCO assumes an important role. Although not in production at the time of writing, the 'Potash Project' constitutes a commitment which, with present production, will round out for the Company a complete line of key fertilizer materials to match the growing needs of almost any soil or crop, anywhere in the world." — (L.R.)

monia from natural gas — this process later revolutionized the production of ammonia in North America. Today this plant is a major ammonia producer. Part of its output is converted to ammonium nitrate and urea, which rank high among the chemical fertilizers. The residual ammonia is shipped west to Trail and to Kimberley as well, where in recent years still another fertilizer

plant has been built, mainly to produce ammonium phosphate fertilizers. One could add that as a result of other Cominco research done at Calgary, the world-wide acceptance of ammonium nitrate as a fertilizer became possible.

In 1965 a major ammonium phosphate unit was completed in Regina, Saskatchewan, using phosphoric acid from Kimberley and ammonia from Calgary. In the United States, the Nebraska plant which came into production in 1966 marks Cominco's direct entry into fertilizer manufacture in that country, through its subsidiary, Cominco American Incorporated.

Still another gigantic stride was being taken in the development of the corporation's range of chemical fertilizer products as I wrote this in 1966. Some twenty miles southwest of Saskatoon, in what has been described as the world's largest known deposit of potash, Cominco's Potash Division is engaged in developing the greatest single enterprise in the Company's history of big-scale development. By the end of 1969, the company's huge potash mine will start producing, with an initial rate of 1,200,000 tons a year. To strike a comparison, this is the production rate, at the time of writing, of *all* the Company's wide range of agricultural chemicals, a peak which has taken 35 years to be attained, and which will be doubled with the addition of this one mine. Very little of this mine's production will be absorbed by the Canadian market. Thus Cominco will join the body of international companies which in competition with each other will become world suppliers of a material vital in feeding so much of a world that "goes to bed hungry every night".

As this is written, a world boom exists in chemical fertilizers. The United States alone consumed eleven million tons of plant food in 1963/64. A projection of world-consumption by 1980 envisages a figure of 110 million tons, a large part of which will



Chemical fertilizer operations, Kimberley, B.C.

Compressor building, fertilizer operations, Calgary, Alberta.





be utilized in the United States and Canada. In this future Cominco stands in a highly favorable position, because it will have all the primary plant nutrients — nitrogen, phosphate and potash. It is also situated in the heartland of the world's most fertile land mass.

One of the Company's greatest potential fertilizer markets remains the bountiful Canadian prairies, where Cominco products are raising the yield-per-acre in what is still "the world's bread basket". In a world where so many go hungry, the produce resulting may well work miracles. One reads of India's five-year plan to make herself self-supporting in terms of food for the first time in history and to rid herself of the repeated scourge of famine. Cominco's Elephant Brand fertilizers may very well play a significant role in this great effort. In part this emphasizes Canada's participation in the Colombo Aid Plan, one of the most successful practical-help programs in history.

Left: Cominco's Elephant Brand fertilizer has been used by Western Canada and Western United States farmers for over thirty years.

Right: "... the bountiful Canadian Prairies, where Cominco products are raising the yield-per-acre in what is still 'the world's bread basket'. In a world where so many go hungry, the produce resulting may well work miracles."





Power – geared to the needs of an industrial giant

Finally, in terms of the four basic pillars mentioned much earlier, we come to power — the power which drives this industrial giant. From the outset — the year was 1897 — the smelter at Trail began to use the wild horses of the Kootenay River, eleven miles downstream from the town of Nelson. The first dam and powerhouse funnelled the first hydro-energy into Rossland and Trail — a total of 4000 horsepower. Now four power plants on the Kootenay together develop a total of 329,000 horsepower entirely for Cominco production use. The four lie comparatively close to one another approximately twenty-five miles to the north-east of Trail. A fifth Kootenay River plant serves as a public utility under the West Kootenay Power and Light Company, a Cominco subsidiary, which also manages all power production and distribution facilities for Cominco in the Kootenays.

Greatest of all the company's power developments, however, is the Waneta plant, ten miles south of Trail on the Pend-d'Oreille River. Power from the first of two units was delivered in 1954; third and fourth units raised the Waneta total to 480,000 horsepower, all for corporate use. Add this to the 329,000 horses of the Kootenay and there's a total energy output in excess of 800,000 horsepower for the company's British Columbia operations alone.

In addition to the foregoing, an equi-change transmission line connects Cominco's power grid with the Bonneville Power Administration's large network south of the U.S. border, establishing a power reservoir which either partner may call on as required.

An 86-mile transmission line also links the turbines of the Trail-area power plants to Kimberley.

Cominco has always manifested interest in the economics of low-cost energy. As early as 1941, it had established its source of hydro-power at the outlet of Bluefish Lake, twenty miles from Yellowknife. This was for the Con mine. Another dam and power-house were built during the same period near Goldfields, Saskatchewan, to drive the ill-fated Box, the history of which has already been mentioned.

Lower Bonnington power plant, Kootenay River.



Waneta power plant, Pend-d'Oreille River, near Trail, B.C.



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Cominco's subsidiaries and affiliates

So stand the four pillars — the mines, the metals, the chemicals, the power. Among them they encompass many activities. They're the essential Cominco, but they're also inextricably woven with the corporation's subsidiaries — like, for example, National Hardware Specialties Limited. Not, as one might think, a chain of retail outlets; rather a firm which, with its own subsidiaries, operates a substantial zinc die-casting and finishing business in Southern Ontario.

Another ? Late in 1965, Cominco acquired a 50 per cent interest in The Canada Metal Company Limited, the country's largest producer of lead products. Cominco's interests, one becomes inclined to believe, are likely to turn up anywhere where minerals, metals and chemicals are involved and a market has been, or can be, opened.

The Company's direct interests in the United States have already been covered in terms of mining and fertilizers. These activities plus sales and general management are under one corporate structure, Cominco American Incorporated, with head offices in Spokane, Washington. Spokane, incidentally, is also involved in the production of fabricated forms of the ultra-high purity metals to supply the strange and exacting needs of man's newest and most exciting leap into the future — the Space Program.

But there are other motivations for any corporation which moves into the world beyond its own borders, as Cominco has done. The theory of partnership is perhaps one of the best examples. Nations are jealous of their sovereignties. In practical terms the "corporate invader" is not always as beloved as he

A wide range of ultra-high-purity metal and alloy fabrications are made by Cominco American Incorporated, Spokane, Washington, for the electronics industry.



Artist's conception of the surface buildings, Magmont lead mine, Bixby, Missouri. This Cominco American Incorporated interest is scheduled for production in 1968.



Japan is an important overseas market for lead and zinc.

would like to be. He is, indeed, much likelier to be welcome and to enjoy a much happier economic climate by joining hands with home interests in the distant lands where opportunity beckons. The domestic partner, in turn, is a gainer, too, in his access to the skills and talents of the newcomer.

Thus, in Japan, one finds Cominco in partnership with the great Mitsubishi group, constructing a smelter to produce 36,000 tons of refined lead a year. In India, on the other hand, the Company joined hands with the Metal Distributors Limited of Calcutta to form the Cominco Binani Zinc Limited, this time with a 40 per cent interest in a zinc smelter and sulphuric acid plant. The world, in short, has become "the oyster" of a great corporation which, so few years ago, envisaged itself almost solely as a Western Canadian mining, smelting and refining operation. Partnership is, in fact, the essence of the operations

of any great organization which reaches far beyond the borders of its country. Cominco, for example, has been in business in Britain for many years through Henry Gardner & Co. Ltd. of London. Recently it formed with this company a 50-50 partnership and through the dually-owned firm of Cominco-Gardner, with head offices in Dusseldorf, energetically pursues metal sales in Europe.

Frankly, it does a Canadian's heart good to see his own countrymen carrying the Maple Leaf flag to far-away places, not merely to sell their wares, but to produce them as well. Canadians (like Cominco with its 95 per cent Canadian ownership) have proved themselves peculiarly adaptable in this respect, which may well derive from the fact that we are not a Great Power. Hence we understand the national feelings of others, sharing them in some degree ourselves. We know that the inde-



Operations of Cominco Binani Zinc Limited at Alwaye, Kerala State, Southwestern India, scheduled to start operations in 1966.



Lead lining a large chemical vessel at the Montreal plant of The Canada Metal Company Limited.

finable and indescribable sense of what is sometimes called “good corporate citizenship” is a *sine qua non*, when one goes abroad in one’s business ventures. Thus, in Japan, in India, in the United States the Cominco purpose has always been, and *is*, to work with nationals of the countries in which the Company is operating, to raise competent people in these countries to executive and managerial posts. One does not err in saying that such a policy can be fairly described as one of enlightened self-interest.

Possibly a similar term applies to participation of Cominco men in their communities, wherever those may be. Cominconians have headed national and international organizations. Their contributions in their specific fields have received world-wide recognition. Cominco is not unique in this respect, but the emphasis is on its role within the industries of which it is a part and the countries which are its home.

Research—a restless and endless quest

Finally, we turn to another group of Cominco people — those responsible for the Company’s activities in the wide and boundless fields of research.

In a world economy constantly in flux — today perhaps more so than at any previous period in history — no corporate operation is stronger than its own perpetual driving-ahead in research. The subject is one which, observed at its sources, is bound to baffle the layman. But one, professing no personal expertise, but nevertheless closely examining techniques, sees four main arms constituting research in the operations we have been examining here.

First, comes the persistent technical research centered at Trail, the purpose of which is to continually put existing manufacturing



Fabrication and finishing of zinc die castings comprise the major activity of the National Hardware Specialties Ltd. group of companies.

Cominco's Tadanac Brand metals and other Cominco products move to world markets via Pacific Coast Terminals Co. Ltd., New Westminster, B.C., and its subsidiary, Pacific Coast Bulk Terminals Ltd., Port Moody, B.C.



processes under the microscope in order to devise new or improved processes. At Trail also, soil scientists research the agromomic problems related to fertilizer use.

Second, but also alongside, is the unceasing research for new end uses for Cominco products or refinements of existing ones, which proceeds at the Cominco Product Research Centre at Sheridan Park on the outskirts of Toronto. Of this one can say that it is the only research centre in the world whose work is devoted exclusively to research into the uses for lead and zinc. The methods and techniques may be puzzling to the layman-visitor. But the purpose is clear: to constantly pursue and find new or improved applications for Cominco's metals.

That is not the whole story of what the word "research" means, either. Market research is almost self-explanatory. The function of those engaged in it is to keep existing markets under constant surveillance and determine how best to develop, improve and service them. Hand in hand with this goes on the equally endless hunt for new markets, existing or potential.

Last, but by no means least, comes corporate development and planning. Its purpose? To provide the stimulus, the guidance, the drive and the new ideas. One might say that it means thinking about and planning for 1980 in 1970.

So that is Cominco today.

Lastly, what of the future? Of this one must say that none

Research in the field of rare metals at the Technical Research Centre, Trail, B.C.



X-ray diffraction equipment in use at the Technical Research Centre at Trail, B.C., for study of the composition and physical structure of metals.



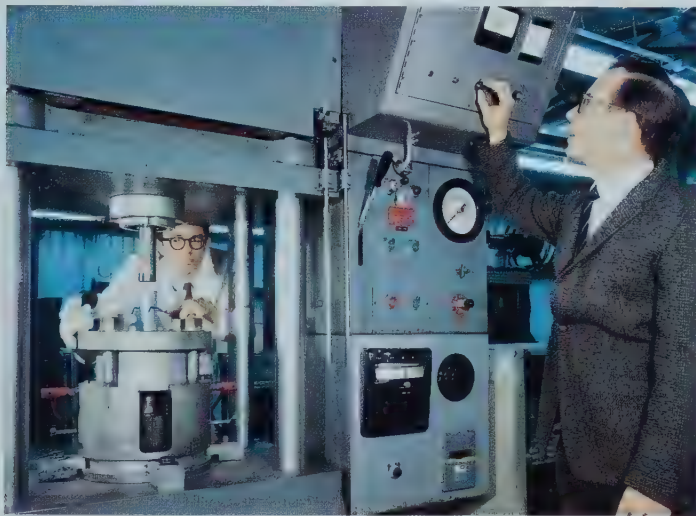
of what is happening — none of the continuing expansion, would be possible were it not for an exceptional marketing organization within the Company with a world background of experience. These are the men who hold much of the future cupped in their hands.

So, if you have come this far with me, you have read of the beginnings and the growth, of the branching out, always supported by those four great pillars. You have read of steel mills and docks, of successful mines and of those which failed to keep the original promise. You have travelled through a great chemicals and fertilizer industry and you have heard about the researchers who work in quiet laboratories at Trail and Sheridan Park. You have read a writer who rejects prophesy on the grounds

that from what he has seen of the past and the present he dare not make predictions about the future. Nevertheless one prophesy can be offered without fear of contradiction. Cominco, like the good shoemaker sticking to his last, can, and probably will, go almost anywhere within the boundaries of the skills and experience derived from its four great pillars.

What will carry it to these future destinations will always be People. Thus we come all the way around the clock to repeat a statement which you read almost at the beginning : “No great enterprise is any greater than the sum-total of the skills, talents, drive, imagination, knowledge, prudence and courage” of the army who are its People.

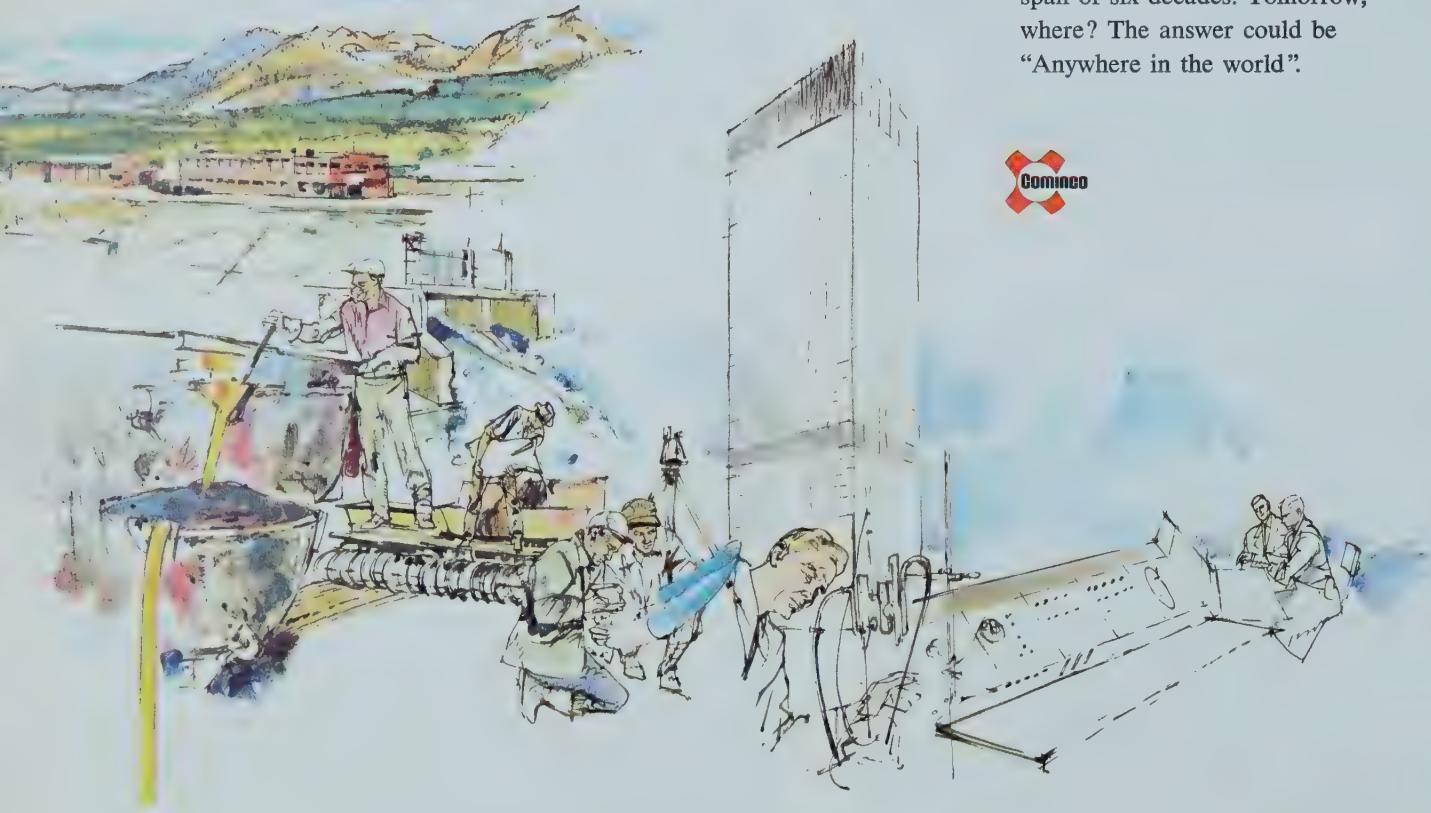
Experimental zinc extrusion press in use at Cominco's Product Research Centre, Sheridan Park, Ontario.



Determining the composition of metallic alloys at Cominco's Product Research Centre, Sheridan Park, Ontario, using an atomic absorption spectrophotometer.



That is Cominco, as it appears to an outsider-looking-in, who has tried to portray in capsule form an operation which, from small beginnings and great risks has risen to its present magnitude in the short span of six decades. Tomorrow, where? The answer could be "Anywhere in the world".



**quick
facts
about
Cominco**



This brochure was created, produced, and
printed in Canada under the direction of
BATEMAN-BROWNE ASSOCIATES LIMITED
Montreal — Quebec

Layout and Design / J. M. Calder
Illustrations / Don Anderson

Photography
F. M. Brennan (Cominco) Trail
George Hunter, Toronto
Wilkinson Studios, Montreal





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Man., Saskatoon, Sask., Calgary, Alta., Vancouver, B.C.

Research Centres: Trail, B.C., Sheridan Park, Ont.

Exploration Offices: Montreal, Que., Toronto, Ont., Trail, B.C.,
Vancouver, B.C.

PRINCIPAL ACTIVE SUBSIDIARIES

COAST COPPER COMPANY LIMITED
Port McNeill, B.C.

NATIONAL HARDWARE SPECIALTIES LIMITED
P.O. Box 250, Dresden, Ont.

PACIFIC COAST TERMINALS CO. LTD.
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Pine Point, N.W.T.

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450 S. E. Marine Drive, Vancouver 15, B.C.

WEST KOOTENAY POWER
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Cedar Ave., Trail, B.C.

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Minneapolis, Minn., Lincoln, Neb.

Exploration Office: Spokane, Wash.

**quick
facts
about
Cominco**



Calgary, Alberta — Ammonia (120,000 tons) produced from natural gas; part of the output is converted to ammonium nitrate (65,000 tons) and urea (90,000 tons); the balance is used in other Company fertilizer plants or sold as such.

Regina, Saskatchewan — Using ammonia from Calgary and phosphoric acid from Kimberley, this plant produces ammonium phosphate fertilizers (100,000 tons).

For other Chemical and Fertilizer operations, see "Subsidiaries & Affiliates".

power

Cominco provides its own power for its Trail and Kimberley operations from 5 hydro-electric plants adjacent to the area — capacity 800,000 h.p.

subsidiaries and affiliates

MINES

Coast Copper Company Limited — (83% owned) Property on Vancouver Island, British Columbia — 1965 output — 292,000 tons of ore; marketed as copper and iron concentrates.

Pine Point Mines Limited — (78% owned) Large open-pit lead-zinc mine at Pine Point, Northwest Territories. High grade ore shipment commenced in 1964. 5,000 ton concentrator started operation late 1965. 1965 output — 440,000 tons of ore.

Magmont Mine and phosphate rock mines — See Cominco American Incorporated.

METALS

Western Canada Steel Limited — (100% owned) Plant at Vancouver, B.C. Produces steel (100,000 tons) from scrap and makes range of industrial fasteners and light and medium structural steel products. Has 50% interest in Hawaiian Western Steel Limited, Honolulu.

Cominco Binani Zinc Limited — (40% interest) In partnership with Metal Distributors Limited, Calcutta, Cominco is building a zinc smelter (22,000 tons) and a sulphuric acid plant (53,000 tons) at Alwaye, Kerala State, Southwest India.

Mitsubishi Cominco Smelting Company Limited — (45% interest) In partnership with Mitsubishi Metal Mining Company Limited, Tokyo, Cominco has an interest in a lead smelter (36,000 tons) on Naoshima Island. Operation commenced in 1966.

The Canada Metal Company Limited — (50% interest) Company with 6 plants across Canada fabricates base metals and alloys — is leading lead fabricator in Canada.

National Hardware Specialties Limited — (100% owned) Company with subsidiaries, **Schultz Die Casting Company of Canada Limited** and **Luster Corporation of Canada Limited** comprises major Canadian zinc die casting and finishing group. Plants in Ontario.

CHEMICALS AND FERTILIZERS

Cominco American Incorporated — (100% owned) Company with head office in Spokane, Washington handles sales of Cominco's fertilizers in the United States; operates phosphate mines in Montana to supply parent company's fertilizer operations (1965 output 407,000 tons of rock and 185,000 tons of concentrates); operates 200,000 ton fertilizer plant in Nebraska and, in partnership with Magnet Cove Barium Corporation, is bringing into production a lead property (70,000 tons of lead concentrates) in Missouri. At Spokane, Company operates high purity metal fabrication plant making basic elements for the electronics industry.

SHIPPING INTERESTS

Pacific Coast Terminals Co. Ltd. — (74% owned) Company operates deep sea storage and dock facilities at New Westminster, B.C., and through a subsidiary, **Pacific Coast Bulk Terminals Limited**, operates bulk storage and loading facilities at Port Moody, B.C.

POWER

West Kootenay Power and Light Company, Limited — (all common shares and 24% of preferred shares) Operates power plant and public utility in Southern B.C.; also operates parent company's power plants under management contract.

SALES

Cominco-Gardner, GmbH, Dusseldorf, W. Germany — (50% interest) Company established in partnership with Henry Gardner & Co. Ltd., London, to promote sales of Cominco metals in Europe.

products

Metals

Lead ☐ Zinc ☐ Silver ☐ Bismuth
☐ Cadmium ☐ Indium ☐ Gold ☐
Antimonial Lead ☐ Zinc Dust ☐
Pig Iron ☐ Copper and Tin
Concentrates ☐

Fabricated Metal Products

Zinc Extrusions ☐ Zinc Die
Castings ☐ Cadmium and Zinc
Plating Anodes ☐ Zinc Anodes for
Cathodic Protection ☐

TADANAC BRAND ☐ COMINCO BRAND ☐ ELEPHANT BRAND
are registered trade marks of the Company.

Steel Fasteners ☐ Light and
Medium Structural Steel
Products ☐

Electronic Materials*

High Purity Metals (99.999% and
99.9999% Pure)

Aluminum ☐ Antimony ☐
Arsenic ☐ Bismuth ☐ Cadmium ☐
Gold ☐ Indium ☐ Lead ☐
Silver ☐ Tin ☐ Tellurium ☐
Thallium ☐ Zinc ☐
Preforms also available ☐

Compound Semiconductors
Indium Antimonide ☐ Indium
Arsenide ☐

Thermo-Electric Materials

Bismuth Telluride ☐

*Available in fabrications to
customers' specifications.

Chemical Fertilizers

Ammonium Sulphate ☐
Ammonium Nitrate ☐ Urea ☐
Anhydrous and Aqua Ammonia ☐
Nitrogen Solutions ☐ Ammonium

Phosphates ☐ Ammonium
Nitrate-Phosphates ☐ Complete
Fertilizers ☐ Ammonium
Phosphate Solutions ☐
Phosphoric Acid ☐
Nitrogen-Sulphur Solutions ☐
Zinc Fertilizer Compound ☐

Chemicals

Ammonia ☐ Urea ☐ Chlorine ☐
Caustic Soda ☐ Sulphuric Acid ☐
Sulphur Dioxide ☐
Urea Feed Compound ☐

output of principal products

YEAR	LEAD* short tons	ZINC* short tons	SILVER* ozs.	CADMIUM short tons	FERTILIZER short tons	IRON & STEEL** short tons	ORES AND CONCENTRATES SOLD short tons
1894 to 1960 (incl.)	6,423,881	5,122,937	366,369,694	13,172	11,460,223	—	16,548
1961	171,833	193,138	8,816,141	963	696,286	32,049	495
1962	152,217	199,393	6,667,813	1,059	714,335	31,441	31,919
1963	155,001	194,159	6,847,606	1,019	708,548	37,678	35,849
1964	151,372	199,011	7,347,590	945	739,080	83,992	41,296
1965	186,484	213,082	6,415,230	359	754,550	180,889	109,502
1894 to date	7,240,788	6,121,720	402,464,074	17,517	15,073,022	366,049	235,609

*Includes metal sold in unrefined products.

**As pig iron

comparative highlights

	1965	1964	1963	1962	1961
Sales of all products	\$211,173,000	\$170,029,000	\$140,307,000	\$131,101,000	\$124,403,000
Net earnings	53,037,000	39,556,000	29,823,000	23,227,000	21,435,000
Dividends declared	30,036,000	26,454,000	21,294,000	18,018,000	16,380,000
Income, mining and property taxes	26,672,000	27,437,000	19,709,000	16,995,000	16,589,000
Capital Expenditures	64,410,000	38,048,000	22,732,000	13,104,000	10,877,000
Number of employees at year-end of Company and its subsidiaries	10,131	9,838	8,474	8,073	8,103
Number of shareholders at year-end	39,066	35,712	35,218	35,805	34,234

the company

Cominco Ltd. is 95% Canadian owned. It is a major world producer of lead, zinc and chemical fertilizers. The Company's head office is in Montreal. Its main mining, metallurgical and chemical operations are in Western Canada centered at Trail, British Columbia.

Note: Capacity figures in the following text are in "short tons per year" unless otherwise indicated.

mines

Sullivan — Kimberley, B.C. — major source of lead, zinc, iron and sulphur; other metals — silver, cadmium, bismuth, antimony, indium, tin. 1965 output 2,301,000 tons of ore.

H.B. — Salmo, B.C. — zinc-lead. 1965 output 416,000 tons of ore.

Bluebell — Riondel, B.C. — lead-zinc. 1965 output 256,000 tons of ore.

Wedge — Newcastle, New Brunswick — copper, sold as concentrate. 1965 output 272,000 tons of ore.

Con — Yellowknife, Northwest Territories — gold.

Cominco Potash — Vade, Saskatchewan. Property, to produce initially 1,200,000 tons per year, being brought into production. Scheduled completion 1969.

For other mining operations, see "Subsidiaries & Affiliates".

metals

TRAIL, B.C.

Major centre of Cominco's metallurgical operations. Processes lead and zinc concentrates from company and non-company mines to produce refined lead, zinc, silver, gold, cadmium, bismuth and indium; and antimonial lead. Also produces range of ultra high purity metals.

Lead — Concentrates sintered for blast furnace feed. Furnace capacity 200,000 tons of bullion. Furnace slag fumed to recover lead and zinc values. Bullion refined electrolytically and associated metals recovered by furnacing and electrolytic refining. Capacities: lead 190,000 tons, silver 15,000,000 troy ozs., gold 350,000 troy ozs., bismuth 150 tons, antimonial lead 4,000 tons.

Zinc — Concentrates roasted and oxide product purified by acid leaching and zinc recovered by electro-deposition. Cadmium recovered as by-product. Capacities: zinc 232,000 tons, cadmium 800 tons.

KIMBERLEY, B.C.

Iron — Iron concentrates from the concentration of Sullivan mine lead-zinc ores provide raw material for pig iron production by electrothermic furnace (capacity — 110,000 tons). Operations include plant for conversion of pig iron to steel ingots.

For other metallurgical operations, see "Subsidiaries & Affiliates".

chemicals and fertilizers

Trail, B.C. — Contact sulphuric acid plants treat by-product sulphur gases from metallurgical operations — capacity 480,000 tons. Ammonia (150,000 tons) is produced from natural gas and from electrolytic processes. Fertilizer products comprise ammonium sulphate, ammonium nitrate and range of ammonium phosphates. Capacity 550,000 tons. Liquid fertilizers are also produced. Chlorine (12,000 tons) and caustic soda (13,800 tons) are produced from electrolysis of salt.

Kimberley, B.C. — Ammonium phosphate fertilizer production (185,000 tons) utilizes by-product sulphur gases from iron operations, ammonia from the Company's Calgary plant and phosphate rock from subsidiary operations in the United States.